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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,429	09/30/2003	JAMES N. HUMENIK	FIS920020186US1	2428

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INTERNATIONAL BUSINESS MACHINES CORPORATION
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EXAMINER

GORDON, BRIAN R

ART UNIT PAPER NUMBER

1743

DATE MAILED: 06/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/605,429

Applicant(s)

HUMENIK ET AL.

Examiner

Brian R. Gordon

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 24-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments filed April 6, 2006 have been fully considered but they are not persuasive. Applicant has made numerous amendments to the claims which has changed the scope of the invention and created more issues than previously existed with the previous version of the claims. While applicant attempted to make the changes as suggested by the examiner, applicant also made other amendments which have changed the scope of the claims. The examiner will make an attempt to explain the issues, however if applicant requires further clarification of the issues, applicant is invited to call the examiner.

The examiner did suggest applicant change apertures to vertical passages but the examiner did not suggest applicant remove the term "set". The examiner asked applicant to further clarify and state how many elements applicant considers to make up a set. Obviously the term means more than one however as exemplified by the drawings it appeared as if a "set" is comprised of two passages or a pair of passages. Considering such claim 1 previously stated forming two sets of apertures and each cell containing a member of each of said two sets, which would mean four apertures and each cell includes one set (two apertures). The claim now states forming at least two passages and each cell including a member of each of said at least two vertical passages. Therefore now there are two passages (one set/pair) and an array of sample cells within each sample cell there is one passage. This is not consistent with the specification or drawings.

In reference to Dugan, applicant asserts “The reference does not teach the use of ceramic materials, but rather teaches away from the use of ceramic materials by teaching the use of thermally conductive materials, preferably metals.” This argument is not commensurate in scope with that of the claims. While the claim states ceramic layers, the claim further states the material of the ceramic layer may be selected from any of the materials of the group. Therefore the layers may be comprised of aluminum and still be considered ceramic as defined within the claims, hence Dugan meets the limitation of the claim in having the plate manufactured from a material as specified within the group.

As to Anazawa et al. applicant merely states how claim 1 was amended but fails to state how the amended claim overcomes the rejection as directed to Anazawa. However, paragraphs 52, 121, and 122 disclose the device is comprised of a ceramic material.

For reasons given herein above the previous rejections are hereby maintained.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed,

had possession of the claimed invention. The specification nor claims previously disclosed the ceramic layers as being made of alternative materials as suggest by applicant and the Markush group specified in the claims. Applicant states the amendment of including such a group in claims 1 and 18 is supported by paragraphs 0045-0047. The examiner disagrees. Paragraph 0045 discloses, "The ceramic material may include alumina, glass ceramic, aluminum nitride, borosilicate glass and glass." This is not in the form of a Markush group in which any single material may be selected as the material which composes the ceramic layer. The statement is not employ alternative language "or". It appears as if it is required the layer be composed of all of the materials listed as supported by the example of paragraph 0049 "the green-sheets are formed from a substance such as alumina, glass, ceramic and glass and ceramic, referred to as ceramic greensheets."

There is no support for the structure of the sample cells (unit modules/cells) as being comprise of only one passage as suggested by the claim; "each sample cell containing a member of each of said at least tow vertical passages". It is suggested by the drawings and specification that each cell comprises a pair/set (where a set is two) of vertical passages.

Applicant asserts the amendment of claim 13 is supported in paragraph 0076. The paragraph doesn't mention "removable liners" moreless suggests the composition of the removable liners is selected from a group of materials.

3. Claims 1-23 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for unit cells/modules each comprising a pair/set

(where a set is two) vertical passages, does not reasonably provide enablement for each cell comprising only a single passage. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

Claims 12, 14, 15, and 17 refer to "at least one vertical passage" whereas the preamended claims referenced a "set" (two). Therefore there's no support for how the device is made nor the device existing with only one of the vertical passages having the structure of the claims as presently amended. Each cell has two passages (set/pair) and the pair (set) of passages each has the same structural characteristics not just one of the two passages as included within the scope of the amended claims.

Claim 18 recites, "...containing a plurality of connecting horizontal channels, in which said connecting horizontal channels connect at least **some members of said at least two vertical passages**, thereby forming an array of sample cells containing horizontal vertical interconnect structures." At least two allows for the scope of the claim to cover there only being two vertical passages verses two sets (four passages, two pair). As such "some" of two is all and having only two vertical passages would create only one cell unit not an array of sample cells as stated in the amended claim.

As to claim 23, there is no support within the specification for only one passage being connected to a space for storing rinsing fluid. (claim should be amended as shown)

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In view of the language of claims 1 and 18 as directed to the Markush group it is only require the ceramic layer be comprised of one of the materials of the list. However all of the materials are not ceramic materials as such while applicant refers to the layers as ceramic is one chooses alumina only as the composition the layer would not be considered ceramic as suggested by the claim.

Applicant has amended the last step of claim 1 to recite "sintering" rather than "assembling". Sintering is a heating process that aids in bonding or assembling process but it does not cause the layers to form a plate as stated in a claim. One can sinter the layers separately however the plate is not formed until the layers are bonded, glued, joined, connected, etc. together. As such it is unclear how sintering alone causes the layers to form the plate as claimed.

The term "interconnect" should be "interconnected" in all the claims in which it is included.

Furthermore it appears as if claim 5 should subsequently read "...., is effected by said sintering."

In claim 1, it is unclear if the sample cell is equivalent to the structures defined within the specification as unit modules or unit cells.

As to claims 6 and 7 recite said first, second, and third layers. There is no antecedent basis within the claims for said second and third layers. It appears as if applicant is referencing said at least one corresponding layer and first and lower layers.

Claims 8-10 and 22 state "the layer that forms the bottom surface". There is no antecedent basis for such a layer for the previous claims do not specify which layer forms the bottom. It appears as if the claims should read; "A method according to claim 1, in which the lower (bottom for claim 22) layer ~~that~~ forms the bottom surface of the horizontal and vertical interconnected structures and"

As to claim 11 there is no basis for said removable layer in claim 9. As such it appears as if the claim should read; "A method according to claim 89, in which said removable layer has a thickness less than 1.0 mm.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 18-23 are rejected under 35 U.S.C. 102(b) as being anticipated Dugan by US 5,843,385.

See Figure 11b. The figure discloses the device as claimed. The first layer 304 has two sets of apertures (336, 370) and (418, 388). A corresponding layer 306 has corresponding apertures (346, 360) or (350, 358) and (394, 408) or (398, 406) and a bottom layer 308 assembled forming channels (horizontal apertures 354 and 402). There are two cross sectional formations seen as claimed.

8. Claims 1-11, and 16-23 are rejected under 35 U.S.C. 102(e) as being anticipated by Anazawa et al. US 2003/10175162.

Anazawa disclose the invention as claimed see figures 7 and 8 and paragraphs 238-250.

The aperture sets (43, 44) and (45,46) both pass through layers 35 and 36 and are respectively connected by channels 33' and 34' and there are subsequent bottom layers. A cross sectional shape as claimed can be seen and if one were to take a cross sectional view along a line of (43,44) another shape would also be seen. The device is discloses as being forming my cutting the elements in the respective layers and subsequently bonding the layers together.

It is disclosed the device may be formed from cast or injection molding as well as other methods.

The elements may be laminated or coated with a number of substances including clear or transparent plastics or polymers.

A member (J-2) was manufactured by interposing a plate having dimensions of 5 cm.times.5 cm.times.3 mm (thickness) made of polystyrene ("DICSTYRENE XC-520", manufactured by Dainippon Ink and Chemicals, Inc.) and a mold made of a silicon wafer

between glass plates, fastening them with a spring clamp, heating in a hot-air oven at 120 C.

Drawings

9. The drawings were received on April 6, 2006. These drawings are acceptable.

Conclusion

10. No claims allowed.

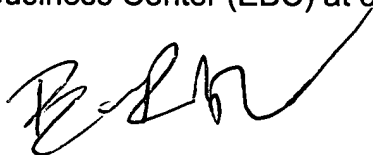
11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian R. Gordon whose telephone number is 571-272-1258. The examiner can normally be reached on M-F, with 2nd and 4th F off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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